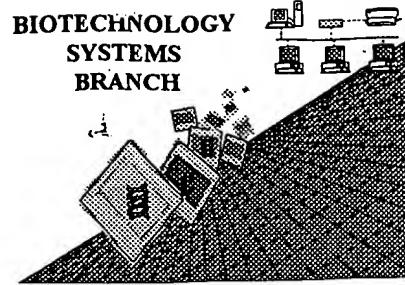


P. Holbrook

RAW SEQUENCE LISTING ERROR REPORT



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/646,224
Source: OIPE
Date Processed by STIC: 9/18/2001

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) **INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,**
- 2) **TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY**

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:
<http://www.uspto.gov/web/offices/pac/checker>

OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

4 <110> APPLICANT: Glaxo Wellcome PLC
5 Tate, Simon N
6 Grose, David T
7 Hicks, Caroline A
9 <120> TITLE OF INVENTION: Ion Channels
11 <130> FILE REFERENCE: PG3432
13 <140> CURRENT APPLICATION NUMBER: US/09/646,224
14 <141> CURRENT FILING DATE: 2001-08-30
16 <150> PRIOR APPLICATION NUMBER: GB 9805793.8
17 <151> PRIOR FILING DATE: 1998-03-18
19 <160> NUMBER OF SEQ ID NOS: 35
21 <170> SOFTWARE: PatentIn Ver. 2.1

Does Not Comply
Corrected Diskette Needed

ERRORED SEQUENCES

500 <210> SEQ ID NO: 2
501 <211> LENGTH: 1765
502 <212> TYPE: PRT
503 <213> ORGANISM: Rattus norvegicus
505 <400> SEQUENCE: 2
506 Met Glu Glu Arg Tyr Tyr Pro Val Ile Phe Pro Asp Glu Arg Asn Phe
507 1 5 10 15
509 Arg Pro Phe Thr Ser Asp Ser Leu Ala Ala Ile Lys Lys Arg Ile Ala
510 20 25 30
512 Ile Gln Lys Glu Arg Lys Lys Ser Lys Asp Lys Ala Ala Ala Glu Pro
513 35 40 45
515 Gln Pro Arg Pro Gln Leu Asp Leu Lys Ala Ser Arg Lys Leu Pro Lys
516 50 55 60
518 Leu Tyr Gly Asp Ile Pro Pro Glu Leu Val Thr Lys Pro Leu Glu Asp
519 65 70 75 80
521 Leu Asp Pro Tyr Tyr Lys Asp His Lys Thr Phe Met Val Leu Asn Lys
522 85 90 95
524 Lys Arg Thr Ile Tyr Arg Phe Ser Ala Lys Arg Ala Leu Phe Ile Leu
525 100 105 110
527 Gly Pro Phe Asn Pro Leu Arg Ser Leu Met Ile Arg Ile Ser Val His
528 115 120 125
530 Ser Val Phe Ser Met Phe Ile Ile Cys Thr Val Ile Ile Asn Cys Met
531 130 135 140
533 Phe Met Ala Asn Ser Met Glu Arg Ser Phe Asp Asn Asp Ile Pro Glu
534 145 150 155 160
536 Tyr Val Phe Ile Gly Ile Tyr Ile Leu Glu Ala Val Ile Lys Ile Leu
537 165 170 175
539 Ala Arg Gly Phe Ile Val Asp Glu Phe Ser Phe Leu Arg Asp Pro Trp
540 180 185 190
542 Asn Trp Leu Asp Phe Ile Val Ile Gly Thr Ala Ile Ala Thr Cys Phe
543 195 200 205

4r5
ppn

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

545 Pro Gly Ser Gln Val Asn Leu Ser Ala Leu Arg Thr Phe Arg Val Phe
546 210 215 220
548 Arg Ala Leu Lys Ala Ile Ser Val Ile Ser Gly Leu Lys Val Ile Val
549 225 230 235 240
551 Gly Ala Leu Leu Arg Ser Val Lys Lys Leu Val Asp Val Met Val Leu
552 245 250 255
554 Thr Leu Phe Cys Leu Ser Ile Phe Ala Leu Val Gly Gln Gln Leu Phe
555 260 265 270
557 Met Gly Ile Leu Asn Gln Lys Cys Ile Lys His Asn Cys Gly Pro Asn
558 275 280 285
560 Pro Ala Ser Asn Lys Asp Cys Phe Glu Lys Glu Lys Asp Ser Glu Asp
561 290 295 300
563 Phe Ile Met Cys Gly Thr Trp Leu Gly Ser Arg Pro Cys Pro Asn Gly
564 305 310 315 320
566 Ser Thr Cys Asp Lys Thr Thr Leu Asn Pro Asp Asn Asn Tyr Thr Lys
567 325 330 335
569 Phe Asp Asn Phe Gly Trp Ser Phe Leu Ala Met Phe Arg Val Met Thr
570 340 345 350
572 Gln Asp Ser Trp Glu Arg Leu Tyr Arg Gln Ile Leu Arg Thr Ser Gly
573 355 360 365
575 Ile Tyr Phe Val Phe Phe Val Val Val Ile Phe Leu Gly Ser Phe
576 370 375 380
578 Tyr Leu Leu Asn Leu Thr Leu Ala Val Val Thr Met Ala Tyr Glu Glu
579 385 390 395 400
581 Gln Asn Arg Asn Val Ala Ala Glu Thr Glu Ala Lys Glu Lys Met Phe
582 405 410 415
584 Gln Glu Ala Gln Gln Leu Leu Arg Glu Glu Lys Glu Ala Leu Val Ala
585 420 425 430
587 Met Gly Ile Asp Arg Ser Ser Leu Asn Ser Leu Gln Ala Ser Ser Phe
588 435 440 445
590 Ser Pro Lys Lys Arg Lys Phe Phe Gly Ser Lys Thr Arg Lys Ser Phe
591 450 455 460
593 Phe Met Arg Gly Ser Lys Thr Ala Gln Ala Ser Ala Ser Asp Ser Glu
594 465 470 475 480
596 Asp Asp Ala Ser Lys Asn Pro Gln Leu Leu Glu Gln Thr Lys Arg Leu
597 485 490 495
599 Ser Gln Asn Leu Pro Val Asp Leu Phe Asp Glu His Val Asp Pro Leu
600 500 505 510
602 His Arg Gln Arg Ala Leu Ser Ala Val Ser Ile Leu Thr Ile Thr Ile
603 515 520 525
605 Gln Glu Gln Glu Lys Phe Gln Glu Pro Cys Phe Pro Cys Gly Lys Asn
606 530 535 540
608 Leu Ala Ser Lys Tyr Leu Val Trp Asp Cys Ser Pro Gln Trp Leu Cys
609 545 550 555 560
611 Ile Lys Lys Val Leu Arg Thr Ile Met Thr Asp Pro Phe Thr Glu Leu
612 565 570 575
614 Ala Ile Thr Ile Cys Ile Ile Ile Asn Thr Val Phe Leu Ala Val Glu
615 580 585 590
617 His His Asn Met Asp Asp Asn Leu Lys Thr Ile Leu Lys Ile Gly Asn

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

618	595	600	605
620	Trp Val Phe Thr Gly Ile Phe Ile Ala Glu Met Cys Leu Lys Ile Ile		
621	610	615	620
623	Ala Leu Asp Pro Tyr His Tyr Phe Arg His Gly Trp Asn Val Phe Asp		
624	625	630	635
626	Ser Ile Val Ala Leu Leu Ser Leu Ala Asp Val Leu Tyr Asn Thr Leu		640
627	645	650	655
629	Ser Asp Asn Asn Arg Ser Phe Leu Ala Ser Leu Arg Val Leu Arg Val		
630	660	665	670
632	Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Thr Leu Ile Lys Ile		
633	675	680	685
635	Ile Gly His Ser Val Gly Ala Leu Gly Asn Leu Thr Val Val Leu Thr		
636	690	695	700
638	Ile Val Val Phe Ile Phe Ser Val Val Gly Met Arg Leu Phe Gly Thr		
639	705	710	715
641	Lys Phe Asn Lys Thr Ala Tyr Ala Thr Gln Glu Arg Pro Arg Arg Arg		
642	725	730	735
644	Trp His Met Asp Asn Phe Tyr His Ser Phe Leu Val Val Phe Arg Ile		
645	740	745	750
647	Leu Cys Gly Glu Trp Ile Glu Asn Met Trp Gly Cys Met Gln Asp Met		
648	755	760	765
650	Asp Gly Ser Pro Leu Cys Ile Ile Val Phe Val Leu Ile Met Val Ile		
651	770	775	780
653	Gly Lys Leu Val Val Leu Asn Leu Phe Ile Ala Leu Leu Leu Asn Ser		
654	785	790	795
656	Phe Ser Asn Glu Glu Lys Asp Gly Ser Leu Glu Gly Glu Thr Arg Lys		
657	805	810	815
659	Thr Lys Val Gln Leu Ala Leu Asp Arg Phe Arg Arg Ala Phe Ser Phe		
660	820	825	830
662	Met Leu His Ala Leu Gln Ser Phe Cys Cys Lys Lys Cys Arg Arg Lys		
663	835	840	845
665	Asn Ser Pro Lys Pro Lys Glu Thr Thr Glu Ser Phe Ala Gly Glu Asn		
666	850	855	860
668	Lys Asp Ser Ile Leu Pro Asp Ala Arg Pro Trp Lys Glu Tyr Asp Thr		
669	865	870	875
671	Asp Met Ala Leu Tyr Thr Gly Gln Ala Gly Ala Pro Leu Ala Pro Leu		
672	885	890	895
674	Ala Glu Val Glu Asp Asp Val Glu Tyr Cys Gly Glu Gly Ala Leu		
675	900	905	910
677	Pro Thr Ser Gln His Ser Ala Gly Val Gln Ala Gly Asp Leu Pro Pro		
678	915	920	925
680	Glu Thr Lys Gln Leu Thr Ser Pro Asp Asp Gln Gly Val Glu Met Glu		
681	930	935	940
683	Val Phe Ser Glu Glu Asp Leu His Leu Ser Ile Gln Ser Pro Arg Lys		
684	945	950	955
686	Lys Ser Asp Ala Val Ser Met Leu Ser Glu Cys Ser Thr Ile Asp Leu		
687	965	970	975
689	Asn Asp Ile Phe Arg Asn Leu Gln Lys Thr Val Ser Pro Lys Lys Gln		
690	980	985	990

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

692 Pro Asp Arg Cys Phe Pro Lys Gly Leu Ser Cys His Phe Leu Cys His
693 995 1000 1005
695 Lys Thr Asp Lys Arg Lys Ser Pro Trp Val Leu Trp Trp Asn Ile Arg
696 1010 1015 1020
698 Lys Thr Cys Tyr Gln Ile Val Lys His Ser Trp Phe Glu Ser Phe Ile
E--> 699 025 1025 1030 1035 1040
701 Ile Phe Val Ile Leu Leu Ser Ser Gly Ala Leu Ile Phe Glu Asp Val
702 1045 1050 1055
704 Asn Leu Pro Ser Arg Pro Gln Val Glu Lys Leu Leu Arg Cys Thr Asp
705 1060 1065 1070
707 Asn Ile Phe Thr Phe Ile Phe Leu Leu Glu Met Ile Leu Lys Trp Val
708 1075 1080 1085
710 Ala Phe Gly Phe Arg Arg Tyr Phe Thr Ser Ala Trp Cys Trp Leu Asp
711 1090 1095 1100
713 Phe Leu Ile Val Val Val Ser Val Leu Ser Leu Met Asn Leu Pro Ser
E--> 714 105 1105 1110 1115 1120
716 Leu Lys Ser Phe Arg Thr Leu Arg Ala Leu Arg Pro Leu Arg Ala Leu
717 1125 1130 1135
719 Ser Gln Phe Glu Gly Met Lys Val Val Val Tyr Ala Leu Ile Ser Ala
720 1140 1145 1150
722 Ile Pro Ala Ile Leu Asn Val Leu Leu Val Cys Leu Ile Phe Trp Leu
723 1155 1160 1165
725 Val Phe Cys Ile Leu Gly Val Asn Leu Phe Ser Gly Lys Phe Gly Arg
726 1170 1175 1180
728 Cys Ile Asn Gly Thr Asp Ile Asn Met Tyr Leu Asp Phe Thr Glu Val
E--> 729 185 1185 1190 1195 1200
731 Pro Asn Arg Ser Gln Cys Asn Ile Ser Asn Tyr Ser Trp Lys Val Pro
732 1205 1210 1215
734 Gln Val Asn Phe Asp Asn Val Gly Asn Ala Tyr Leu Ala Leu Gln
735 1220 1225 1230
737 Val Ala Thr Tyr Lys Gly Trp Leu Glu Ile Met Asn Ala Ala Val Asp
738 1235 1240 1245
740 Ser Arg Glu Lys Asp Glu Gln Pro Asp Phe Glu Ala Asn Leu Tyr Ala
741 1250 1255 1260
743 Tyr Leu Tyr Phe Val Val Phe Ile Ile Phe Gly Ser Phe Phe Thr Leu
E--> 744 265 1265 1270 1275 1280
746 Asn Leu Phe Ile Gly Val Ile Ile Asp Asn Phe Asn Gln Gln Lys
747 1285 1290 1295
749 Lys Leu Gly Gly Gln Asp Ile Phe Met Thr Glu Glu Gln Lys Lys Tyr
750 1300 1305 1310
752 Tyr Asn Ala Met Lys Lys Leu Gly Thr Lys Lys Pro Gln Lys Pro Ile
753 1315 1320 1325
755 Pro Arg Pro Leu Asn Lys Cys Gln Ala Phe Val Phe Asp Leu Val Thr
756 1330 1335 1340
758 Ser Gln Val Phe Asp Val Ile Ile Leu Gly Leu Ile Val Leu Asn Met
E--> 759 345 1345 1350 1355 1360
761 Ile Ile Met Met Ala Glu Ser Ala Asp Gln Pro Lys Asp Val Lys Lys
762 1365 1370 1375
764 Thr Phe Asp Ile Leu Asn Ile Ala Phe Val Val Ile Phe Thr Ile Glu

When
numbering,
first amino
acid on a
line, begin
number directly
under first
letter of amino
acid

1.3 Lys
1025

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:16

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

765 1380 1385 1390
 767 Cys Leu Ile Lys Val Phe Ala Leu Arg Gln His Tyr Phe Thr Asn Gly
 768 1395 1400 1405
 770 Trp Asn Leu Phe Asp Cys Val Val Val Val Leu Ser Ile Ile Ser Thr
 771 1410 1415 1420
 773 Leu Val Ser Arg Leu Glu Asp Ser Asp Ile Ser Phe Pro Pro Thr Leu
 E--> 774 425 1430 1435 1440
 776 Phe Arg Val Val Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg Leu Val
 777 1445 1450 1455
 779 Arg Ala Ala Arg Gly Ile Arg Thr Leu Leu Phe Ala Leu Met Met Ser
 780 1460 1465 1470
 782 Leu Pro Ser Leu Phe Asn Ile Gly Leu Leu Leu Phe Leu Val Met Phe
 783 1475 1480 1485
 785 Ile Tyr Ala Ile Phe Gly Met Ser Trp Phe Ser Lys Val Lys Lys Gly
 786 1490 1495 1500
 788 Ser Gly Ile Asp Asp Ile Phe Asn Phe Glu Thr Phe Thr Gly Ser Met
 E--> 789 505 1510 1515 1520
 791 Leu Cys Leu Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Thr Leu Leu
 792 1525 1530 1535
 794 Asn Pro Met Leu Glu Ala Lys Glu His Cys Asn Ser Ser Gln Asp
 795 1540 1545 1550
 797 Ser Cys Gln Gln Pro Gln Ile Ala Val Val Tyr Phe Val Ser Tyr Ile
 798 1555 1560 1565
 800 Ile Ile Ser Phe Leu Ile Val Val Asn Met Tyr Ile Ala Val Ile Leu
 801 1570 1575 1580
 803 Glu Asn Phe Asn Thr Ala Thr Glu Glu Ser Glu Asp Pro Leu Gly Glu
 E--> 804 585 1590 1595 1600
 806 Asp Asp Phe Glu Ile Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Glu
 807 1605 1610 1615
 809 Ala Ser Gln Phe Ile Gln Tyr Ser Ala Leu Ser Asp Phe Ala Asp Ala
 810 1620 1625 1630
 812 Leu Pro Glu Pro Leu Arg Val Ala Lys Pro Asn Lys Phe Gln Phe Leu
 813 1635 1640 1645
 815 Val Met Asp Leu Pro Met Val Met Gly Asp Arg Leu His Cys Met Asp
 816 1650 1655 1660
 818 Val Leu Phe Ala Phe Thr Thr Arg Val Leu Gly Asp Ser Ser Gly Leu
 E--> 819 665 1670 1675 1680
 821 Asp Thr Met Lys Thr Met Met Glu Glu Lys Phe Met Glu Ala Asn Pro
 822 1685 1690 1695
 824 Phe Lys Lys Leu Tyr Glu Pro Ile Val Thr Thr Lys Arg Lys Glu
 825 1700 1705 1710
 827 Glu Glu Gln Gly Ala Ala Val Ile Gln Arg Ala Tyr Arg Lys His Met
 828 1715 1720 1725
 830 Glu Lys Met Val Lys Leu Arg Leu Lys Asp Arg Ser Ser Ser His
 831 1730 1735 1740
 833 Glu Val Phe Cys Asn Gly Asp Leu Ser Ser Leu Asp Val Ala Lys Val
 E--> 834 745 1750 1755 1760
 836 Lys Val His Asn Asp
 837 1765

*Dave
Jenn*

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/646,224

DATE: 09/18/2001
TIME: 10:11:17

Input Set : A:\Pg3432.app
Output Set: N:\CRF3\09182001\I646224.raw

L:13 M:270 C: Current Application Number differs, Replaced Application Number
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:699 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2